Application No. 10/516,733
Amendment dated August 29, 2006
First Preliminary Amendment

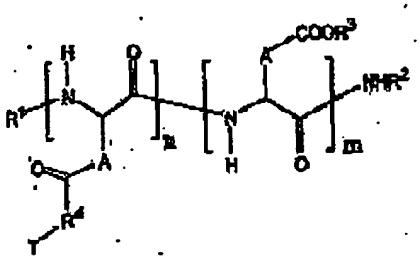
Docket No.: 022290.0122PTUS

AMENDMENT TO CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A polyamino acid comprising aspartic units and/or glutamic units, characterized in that at least some of these units bear grafts comprising at least one α-tocopherol unit.

2. (Currently Amended) The polyamino acid as claimed in claim 1, characterized by the general formula (I) below:



(I)

in which:

- R^1 represents H, a linear C2 to C10 or branched C3 to C10 acyl group, or a pyroglutamate;
- R^2 represents H, a C2 to C10 linear or C3 to C10 branched alkyl, benzyl or a terminal amino acid unit;
- R^3 is H or a cationic species preferably selected from the group comprising:
  - metallic cations advantageously chosen from the subgroup comprising sodium, potassium, calcium and magnesium,
  - organic cations advantageously chosen from the subgroup comprising:
    - amine-based cations,
    - oligoamine-based cations,
    - cations based on polyamine (polyethyleneimine being particularly preferred),
    - cations based on amino acid(s) advantageously chosen from the class comprising cations based on lysine or arginine,

- or cationic polyamino acids advantageously chosen from the subgroup comprising polylysine or oligolysine;

- R^4 represents a direct bond or a "spacer" based on 1 to 4 amino acid units;
- A independently represents a $-CH_2-$ (aspartic unit) or $-CH_2-CH_2-$ (glutamic unit) radical;
- n/ (n+m) is defined as the molar degree of grafting and ranges from 0.5 to 100 mol%;
- n+m ranges from 3 to 1000 and preferably between 30 and 300;
- T represents an α-tocopherol unit.

3. (Original) The polyamino acid as claimed in claim 1 or 2, characterized in that the α-tocopherol is of natural origin.

4. (Original) The polyamino acid as claimed in claim 1 or 2, characterized in that the α-tocopherol is of synthetic origin.

5. (Original) The polyamino acid as claimed in claim 2, characterized in that it consists of an α-L-glutamate or α-L-glutamate homopolymer.

6. (Original) The polyamino acid as claimed in claim 2, characterized in that it consists of an α-L-aspartate or α-L-aspartic homopolymer.

7. (Original) The polyamino acid as claimed in claim 2, characterized in that it consists of an α-L-aspartate/α-L-glutamate or α-L-aspartic/α-L-glutamic copolymer.

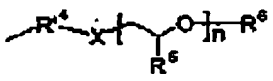
8. (Original) The polyamino acid as claimed in any one of claims 1 to 7, characterized in that the distribution of the aspartic and/or glutamic units bearing grafts comprising at least one α-tocopherol unit is such that the polymers thus composed are either random, or of block type, or of multiblock type.

9. (Original) The polyamino acid as claimed in any one of claims 1 to 8, characterized in that their molar mass is between 2000 and 100 000 g/mol and preferably between 5000 and 40 000 g/mol.

10. (Original) The polyamino acid as claimed in any one of claims 1 to 9, characterized in that the molar degree of grafting is between 3% and 70% and preferably between 5% and 50%.

11. (Original) The polyamino acid as claimed in any one of claims 1 to 10, characterized in that it bears at least one graft of polyalkylene glycol type linked to a glutamate and/or aspartate unit.

12. (Original) The polyamino acid as claimed in claim 11, of formula (II) below:



(II)

in which:

- R'^4 represents a direct bond or a "spacer" based on 1 to 4 amino acid units;

- X is a hereto atom chosen from the group comprising oxygen, nitrogen and sulfur;

- R^5 and R^6 independently represent H or a linear C1 to C4 alkyl;

- n ranges from 3 to 1000.

13. (Original) The polyamino acid as claimed in claim 11 or 12, characterized in that the polyalkylene glycol is a polyethylene glycol.

14. (Original) The polyamino acid as claimed in any one of claims 11 to 13, characterized in that the molar percentage of grafting of the polyalkylene glycol ranges from 1% to 30%.

15. (Original) A pharmaceutical, cosmetic, dietetic or plant-protection composition comprising at least one of the polyamino acids as claimed in any one of claims 1 to 14.

16. (Original) The composition as claimed in claim 15, characterized in that it comprises at least one active principle.

17. (Original) The composition as claimed in claim 15 or 16, characterized in that the active principle is a protein, a glycoprotein, a polysaccharide, a liposaccharide, an oligonucleotide, a polynucleotide or a peptide.

18. (Original) The composition as claimed in claim 16 or 17, characterized in that the active principle is a hydrophobic, hydrophilic or amphiphilic organic "small" molecule.

19. (Original) The composition as claimed in any one of claims 15 to 18, characterized in that it may be administered via the oral, parenteral, nasal, vaginal, ocular, subcutaneous, intravenous, intramuscular, intradermal, intraperitoneal, intracerebral or buccal route.

20. (Original) The composition as claimed in any one of claims 15 to 19, characterized in that it is in the form of a gel, an emulsion, a solution, a suspension, micelles, nanoparticles, microparticles, a powder or a film.

21. (Original) The composition is claimed in any one of claims 15 to 20, characterized in that it is a colloidal suspension of nanoparticles and/or microparticles and/or micelles of polyamino acids, in an aqueous phase.

22. (Original) The composition as claimed in any one of claims 15 to 19, characterized in that it is in the form of a solution in a biocompatible solvent and in that it is capable of being injected subcutaneously, intramuscularly or into a tumor.

23. (Original) The composition as claimed in any one of claims 15 to 22, characterized in that it is injectable and in that it is capable of forming a deposit at the site of injection.

24. (Original) The composition as claimed in any one of claims 15 to 23, characterized in that it is for the preparation:

- of medicinal products, in particular for oral, nasal, vaginal, ocular, subcutaneous, intravenous, intramuscular, intradermal, intraperitoneal or intracerebral administration, the active principles of these medicinal products possibly being, especially, proteins, glycoproteins, proteins linked to one or more polyalkylene glycol chains {for example polyethylene glycol (PEG), in which case they are referred to as "PEGylated" proteins}, peptides, polysaccharides, liposaccharides, oligonucleotides, polynucleotides and hydrophobic, hydrophilic or amphiphilic organic small molecules;
- and/or nutrients;
- and/or cosmetic or plant-protection products.

25. (Original) A process for the preparation:

- of medicinal products, in particular for oral, nasal, vaginal, ocular, subcutaneous, intravenous, intramuscular, intradermal, intraperitoneal or intracerebral administration, the active principles of these medicinal products possibly being, especially, proteins, glycoproteins, proteins linked to one or more polyalkylene glycol chains {for example polyethylene glycol (PEG), in which case they are referred to as "PEGylated" proteins}, peptides, polysaccharides, liposaccharides, oligonucleotides, polynucleotides and hydrophobic, hydrophilic or amphiphilic organic small molecules;
- and/or nutrients;
- and/or cosmetic or plant-protection products;

characterized in that it consists essentially in using at least one polyamino acid as claimed in any one of claims 15 to 23.